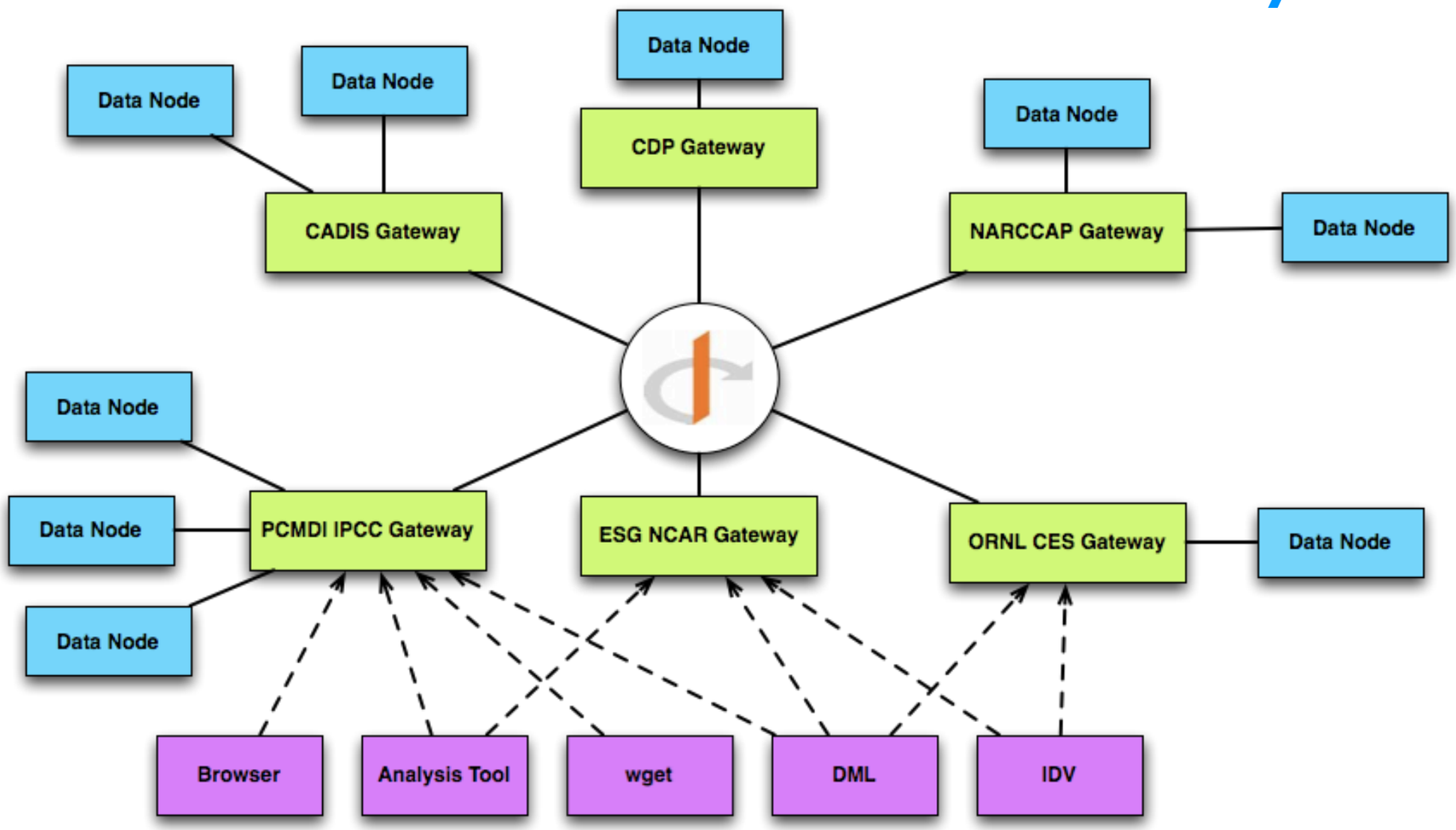
New and Envisioned Functionality of the Next Generation ESG-CET system

A use-case driven approach and demo.

Luca Cinquini & Eric Nienhouse
on behalf of the whole
ESG-CET collaboration

The Next Generation ESG-CET System

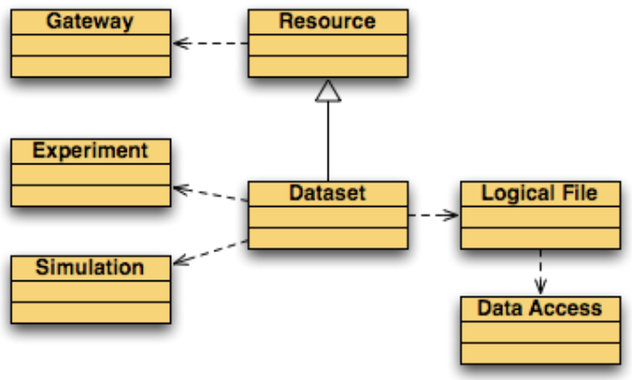


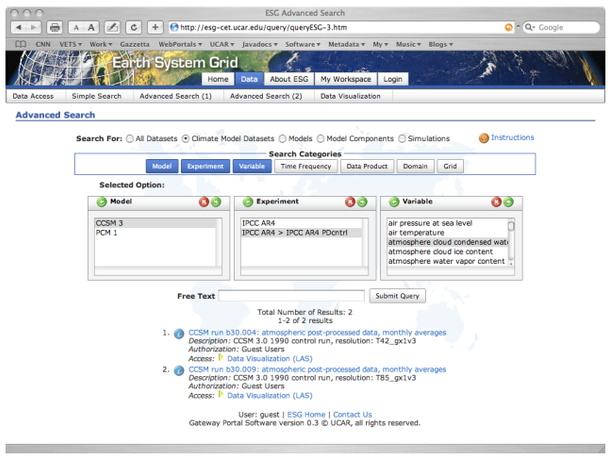
- Distributed and Federated architecture
- Support discipline-specific Gateways
- Support browser-based + direct client access

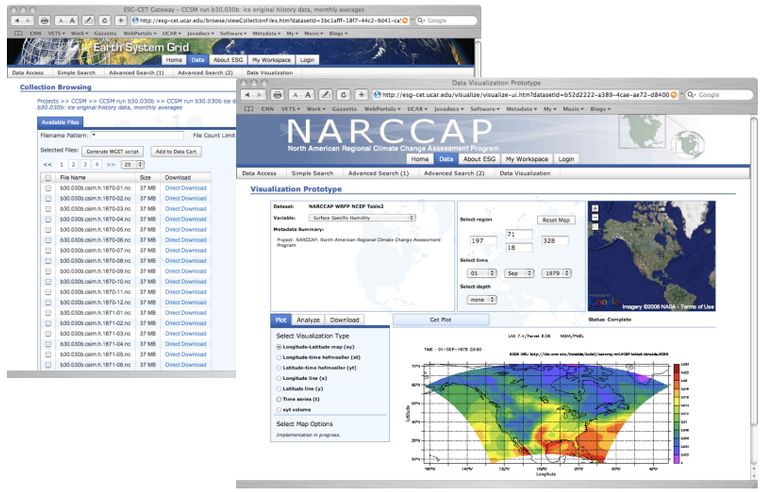
Earth System Grid

Use Case 1: Scientific Metadata Search

"Find surface temperature data across all models for a specific IPCC experiment that has volcanic forcing".



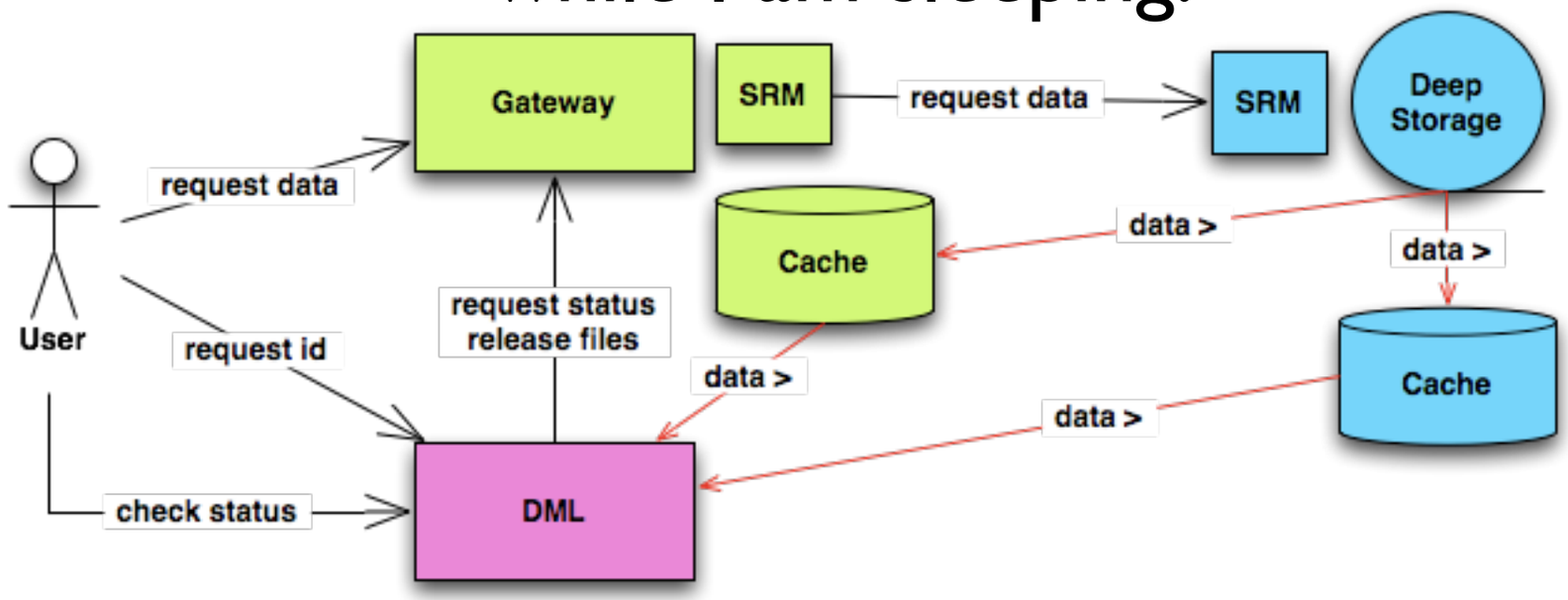




- Capture Scientific Metadata in detailed object model
- Faceted Search to slice through data via user-selected categories
- Link to Data Access Points (files or products)
- Broker App for one-click request of data products ?

Use Case 2: Large Number of Files

"Download 1000 files from deep storage to my desktop while I am sleeping."

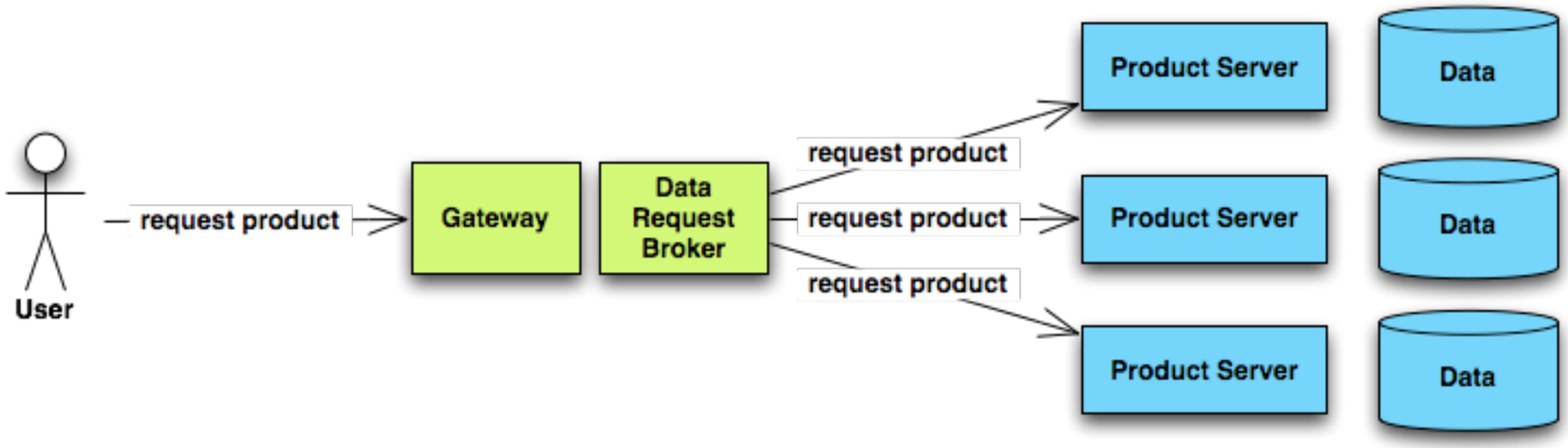


Automatize client-Gateway interaction via Web Services:

- User finds, requests data through Gateway
- User passes request identifier to DML
- DML downloads files as they become available
- DML "releases" files already downloaded
- User checks request status via DML (or Gateway)

Use Case 3: High-End Product, Federation

"Show me sea surface temperature plots for 3 different datasets (output of different models, same forcing) that are stored at 3 different locations."



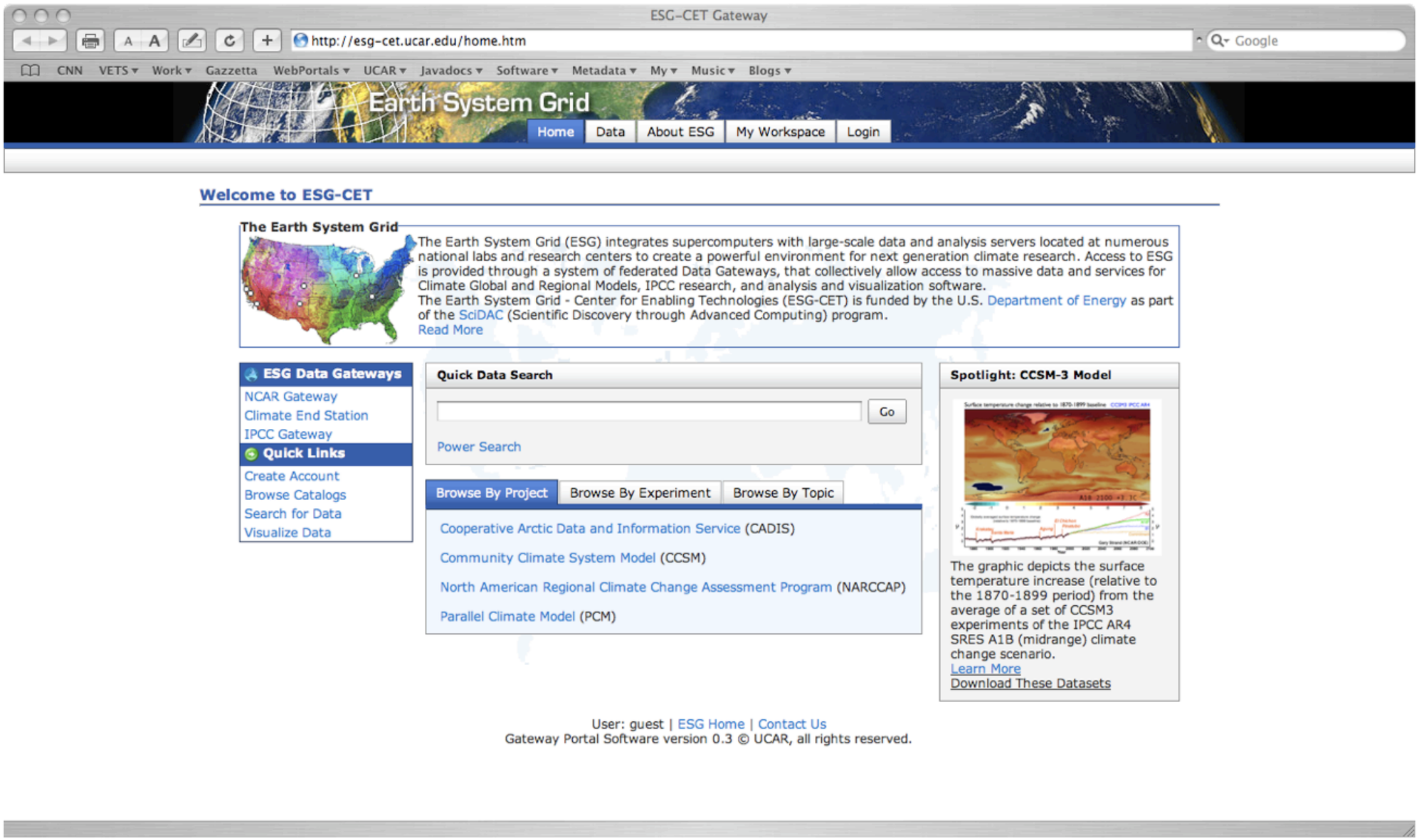
- More powerful data selection algorithm
- Integration of LAS product server on Gateway, Data Nodes
- Single Sign On authentication via OpenID
- Common authorization model

Longer Term Goals

More complex use cases and functionality
(post IPCC-AR5 deadline) :

- Combine deep storage retrieval with sub-setting (by variable, geographic region) and post-processing (e.g. zonal means)
- Rich clients that combine data retrieval with analysis, visualization
- Upload of user analysis algorithms to be run on servers
- etc...

Demo


ESG-CET Gateway
http://esg-cet.ucar.edu/home.htm
Google
CNN VETS Work Gazzetta WebPortals UCAR Javadocs Software Metadata My Music Blogs
Earth System Grid
Home Data About ESG My Workspace Login
Welcome to ESG-CET
The Earth System Grid
The Earth System Grid (ESG) integrates supercomputers with large-scale data and analysis servers located at numerous national labs and research centers to create a powerful environment for next generation climate research. Access to ESG is provided through a system of federated Data Gateways, that collectively allow access to massive data and services for Climate Global and Regional Models, IPCC research, and analysis and visualization software.
The Earth System Grid - Center for Enabling Technologies (ESG-CET) is funded by the U.S. Department of Energy as part of the SciDAC (Scientific Discovery through Advanced Computing) program.
Read More
ESG Data Gateways
NCAR Gateway
Climate End Station
IPCC Gateway
Quick Links
Create Account
Browse Catalogs
Search for Data
Visualize Data
Quick Data Search
Go
Power Search
Browse By Project
Browse By Experiment
Browse By Topic
Cooperative Arctic Data and Information Service (CADIS)
Community Climate System Model (CCSM)
North American Regional Climate Change Assessment Program (NARCCAP)
Parallel Climate Model (PCM)
Spotlight: CCSM-3 Model
The graphic depicts the surface temperature increase (relative to the 1870-1899 period) from the average of a set of CCSM3 experiments of the IPCC AR4 SRES A1B (midrange) climate change scenario.
Learn More
Download These Datasets
User: guest | ESG Home | Contact Us
Gateway Portal Software version 0.3 © UCAR, all rights reserved.